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GUIDELINE-BASED STATIN ALLOCATION TO DISTINGUISH BOTH CARDIOVASCULAR EVENTS AND CORONARY ARTERY CALCIFICATION IN THE COMMUNITY: A COMPARISON OF THE 2004 NCEP ATP III AND 2013 ACC/AHA CHOLESTEROL TREATMENT GUIDELINE

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Background: The 2013 ACC/AHA guidelines for management of blood cholesterol (ACC/AHA) have substantially increased the number of asymptomatic adults who are eligible for primary preventive statin therapy. We sought to determine whether these new guidelines significantly improve the identification of individuals who develop incident cardiovascular disease (CVD) and/or have coronary artery calcium (CAC) compared to the 2004 NCEP ATPIII guideline (ATPIII).

Methods: Statin eligibility was determined based on Framingham risk factors and LDL-thresholds for ATPIII, whereas the pooled cohort calculator was utilized for the ACC/AHA guideline. Participants were followed for a median of 8 years for incident major CVD (myocardial infarction, death from coronary heart disease, or ischemic stroke). CAC was measured by cardiac computed tomography. In the Framingham Heart Study participants in the Offspring and Third Generation cohorts free of known CVD, we determined risk for incident CVD based on statin eligibility using multivariate Cox proportional hazard models, and agreement of statin eligibility and presence of CAC for each guideline.

Results: The study cohort consisted of 2452 statin-naïve participants (51.3 ± 8.6 yrs; 56% female) without prevalent CVD. In those eligible for statin versus not eligible, the hazard ratio for developing CVD was 3.28 (95%CI: 1.98-5.42) for the ATPIII versus 7.65 (95%CI: 4.10-14.3) for the ACC/AHA guideline. (p=.0007) Of those with CAC>0 (n=1029), 23% were eligible for statin with the ATPIII guideline versus 64% with the ACC/AHA guideline (p=.0001). More importantly, of those with CAC>= 300 (n=194), only 35% were eligible for statin with the ATPIII guideline versus 86% with the ACC/AHA guideline. (p<.0001) Conversely, of those with CAC=0 (n=1423), 7% were eligible for statin therapy with the ATPIII guideline versus 22% with the ACC/AHA guideline. (p<.0001)

Conclusion: The ACC/AHA guidelines provide significantly better allocation of statin therapy to those at increased risk for CVD and those with any or elevated levels of CAC as compared to the ATPIII guidelines, suggesting that the new guidelines will provide improved prevention of cardiovascular events.